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ABSTRACT

This paper examines the characteristics of an educational innovation that affect its adoption by public schools. The particular innovation under discussion is Project Advance, a cooperative program between Syracuse University and various New York secondary schools that offers selected college-level courses for academically able seniors at participating high schools. The varied perceptions of Project Advance by school personnel, parents, and students at the participating schools are discussed in light of whether they encouraged or hindered adoption of the program. Perceptions of five characteristics were considered especially important--the "relative advantage" of adopting the program, its compatibility with existing social values and organizational structures, its complexity, its trialability, and its observability. Results of the study show that Project Advance does not possess all five characteristics to an equal degree. The author concludes, however, that the low interrelationships among the five attributes indicate that uniformity is not necessary to maximize the potential for adoption. (Author/JG)

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PERCEIVED ATTRIBUTES OF AN INNOVATION

SYRACUSE UNIVERSITY PROJECT ADVANCE

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Remarks Presented

at the Annual Meeting of the

American Educational Research Association

Curriculum and Objectives Division Symposium

"An Analysis of Programs Linking High School and College Curricula"

Washington, D.C.

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by

Robert E. Holloway

March 1975

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Background of the Innovation

In the fall of 1972 several school superintendents in the Syracuse area approached Syracuse University requesting certification of existing high school offerings for college credit. Syracuse University, through the Center for Instructional Development, subsequently proposed a cooperative project based on existing college courses which had gone through an instructional development process, including field testing and evaluation, on campus. The intent of the initial proposal, certification, as well as the subsequent alternative, Project Advance, was to provide a new option for academically able seniors. College credit was perceived as a motivating factor as well as a recognition of quality high school faculty and the ability of students to do college level work while in high school. Several types of existing programs, such as advanced placement by testing, split day sessions, and early graduation, have been developed to meet similar needs.

Concurrently in preparation, several major recommendations, particularly in the Carnegie Commission's report on Continuity and Discontinuity (1974) and the New York State Regents Position Paper (1974), provided encouragement from the policy making level for expansion and innovation of programs linking secondary and tertiary curricula. With support from the New York State Education Department, high school faculty worked with University faculty to clarify the course design and grading criteria in the high school.

In the fall of academic year 1973-74 Syracuse University Project Advance was implemented in nine high schools. The background, rationale, and process are described in more detail in Project Advance: An Alternative Approach to High School-College Articulation, Research Report 3, the Center for Instructional Development (Diamond and Holloway, 1975). Following the field test year, the course offerings were expanded to over 40 schools in 1974-75. The evaluation efforts of the first year are reported in Research Report 4, Project Advance Evaluation, Series A, 1973-74 (Slotnick, Chapman, and Holloway, 1975) also from the Center for Instructional Development.

Context and Purpose of the Analysis

The growing scope and frequency of articulation programs (Wilbur, 1974) tended to justify an examination of this class of educational innovations. While the hypothesis that change is neither culture-bound or idiosyncratic has been convincingly presented, cooperative programs at the secondary-tertiary juncture pose

their own set of characteristics as, in a somewhat metaphorical sense, does any trait-treatment interaction study. This sets the stage for studies which have the potential to highlight basic problems in such cooperative efforts. That is, the ". . .adoption performance on one innovation is not necessarily a reliable predictor of adoption performance on another innovation or several other innovations" (Carlson, 1965; p. 53). The adoption of team teaching, for instance, may represent a class of innovations conceptually distinct from secondary-tertiary articulation programs.

As Carlson (1965) suggested, the rates of adoption and diffusion have depended on two sets of characteristics, 1) those of the adopting unit and 2) those of the innovation. Syracuse University Project Advance offered opportunities to examine both. In the first instance, the adopting schools could be compared, on several criteria, to non-adopters over time. The second instance was the thrust of these observations: how were the characteristics of the innovation related to adoption and diffusion. The contention was that, to a large degree, the characteristics of the innovation predetermine the rate of adoption. An analysis of such characteristics ". . .could be of. . .value to change agents seeking to base their strategies on diffusion research findings," (Rogers and Shoemaker, 1971) and thus anticipate the reactions of potential adopters. The intent of the following observations and remarks was to examine a limited number of characteristics of the innovation as they may have been related to adoption. "Innovation" in this context was simply defined as something perceived as new. It may have been a radical change or one of negligible consequence: common and accepted practice in other settings, but new in the adopting unit.

The spread of the course offerings from school to school and within each school provided formative data to verify some factors which may affect adoption and diffusion. Adoption was characterized as the offering of Syracuse credit-bearing courses in one or more subjects in a school. Diffusion was an increase in class sections or additional subjects within a school. Verification, in this context, sought to describe <u>what</u> happened, rather than why (Kelly, Pascarella, and Dugan, 1974). Such verification of factors in case studies has been recommended (Rogers and Shoemaker, 1971) as a contribution to an empirical basis for the development of generalizations which lead to theory.

Characteristics of the Innovation

The gross categories typically used to describe important perceived characteristics of an innovation have been (Rogers and Shoemaker, 1971)

1) relative advantage: "better than" in economic, political or social advantage
2) compatibility: consistent with existing social values, organizational structure and perceived needs
3) complexity: difficult to understand or use
4) trialability: may be experimented with or a limited basis
5) observability: visible to others

It is important to note that these categories were projections of the perceptions of the members of a social system. These perceptions by potential adopters may not necessarily be congruent with such factors as research findings, advocates' viewpoints or real costs. As others have observed, "The prospective adopter is not likely to select the research-based solution solely because it stands on a base of scientific knowledge, especially if something else is less expensive. . .or otherwise attractive" (Brickell, 1967, p. 235).

Relative Advantage. The simplification of this attribute is the adopter's question: "Is this better than the existing way(s) of doing things?" Economic profit is usually the criterion. Public schools are not market-oriented in this sense, as Pincus (1974) pointed out, and are ". . .less likely than the competitive firm to adopt cost reducting innovations. . ." With relatively static budgets, schools are becoming more sensitive to new expenditures. New expenditures in a static budget mean displacement of support for existing activities. Schools traditionally have favored innovations which promote community image. That is, they have wished to show they were "up-to-date," "efficient," "professional," and "responsive" (Pincus, 1974).

The costs to a school which implemented Project Advance averaged between $200 to $400 per teacher per course for initial training. Those courses offered in the high school averaged $20 to $30 per student per course for the initial outlay for texts, tests, and other materials. However, the real cost to the school was less for two reasons. The training was offered as workshops open to all schools whether or not they planned to or actually offered Project Advance courses and thus qualified for partial reimbursement through state aid. Additionally, the courses were offered as high school courses with students paying tuition to the University for recording and supervising the achievement of college

level work. Thus, the materials were purchased as part of the regular school budget and was also defrayed by state aid. The extensive development for the courses had been borne by the University earlier since the objective had been to improve on-campus courses.

Given this somewhat serendipitous set of circumstances, the schools were able to justify the costs to the community. Transferable college credit for high school seniors met the criteria for "up-to-dateness," indicated responsiveness to student needs, and enhanced the professional status of the high school faculty. The elimination of duplication in the curriculum appealed to the criterion of efficiency and the relatively low initial cost did not impede adoption.

The schools were aware of the continuing in-service work required of teachers, a short workshop each semester on course changes and standards, and recurring materials costs, such as test forms. These costs were minimal: less than $5 per student per course and less than $75 per teacher per year. These costs were usually subsumed under existing budgets for substitutes, travel, or materials. On several occasions the University underwrote costs when they were not part of regular budget. This included replacement of materials when major revisions occurred in the on-campus courses. Thus the maintenance costs for continuing the innovation did not impede adoption. This was the strongest statement that could be made since the schools were not profit oriented, and indeed were legally constrained to show no profit.

The relative advantage for the innovation as perceived by the public schools appeared to be its economic optimality: it involved neither profit nor additional cost while potentially improving the image of the school in the community.

Other publics were involved in the offering of courses, and economic considerations beyond the schools came into effect. Tuition was required of those students seeking college credit. This was paid directly to the University and did not involve the public schools. The tuition defrayed the University costs of recording, evaluating, and supervising the achievement of college level work.

The actual source of the tuition was, of course, the parents rather than the students. The relative costs, or advantage, of Syracuse University Project Advance tuition were openly examined by parents. Since other options enabling high school students to obtain college transcript credit were at least as expensive, adoption and implementation appeared to be relatively desirable to parents. For example, three credit hours through Project Advance cost $50. The same three credit hours on the University campus would cost approximately $320. Arrangements

with local community colleges averaged about $60 for three hours while public four year colleges were charging approximately $70 for the same number of hours. Questions during discussion period at parents' nights at adopting high schools as well as a survey of parent attitudes (Chapman, 1975) indicated economic advantage was not an important factor. Parents were aware that many colleges have a flat tuition rate enabling students to take courses above the minimum load at no additional cost. Further, earning three to nine credits would not appreciably reduce the total time needed to earn a college degree. While not precluding adoption, costs as long term advantage did not translate into savings. Relative advantage for students and parents involved factors beyond economics, partly as a function of the nature of the innovation (Wilkening and Johnson, 1961).

Parents and students felt strongly about the experience of college work. A survey of 170 parents indicated that the ". . .equivalence of the courses on- and off-campus was. . .the most important outcome. . ." (Slotnick and Chapman, 1975). Eighty-nine percent of the parents favored using the same evaluation standards on- and off-campus. In contrast, favorable publicity for the local school was rated as one of the least important outcomes. Only 36% of the parents indicated that it was important that "High schools participating in Project Advance are considered innovative by people living in those school districts" (Slotnick and Chapman, 1975). The relative advantage of Project Advance, as well as other innovations in this class, may have been the experience of college work for the student. Bearing this point out, a survey of students who refused to transfer their credit, even though they earned respectable grades, revealed that they believed that they could do even better in the colleges in which they enrolled and the satisfaction of success in a college level course was reward enough in itself (Wilbur, 1975).

Noneconomic advantages, such as social approval (Fliegel and others, 1968), experiential advantage, status, and self-image, may have served as incentives to adopt. Seventy-one percent of the parents surveyed (Slotnick and Chapman, 1975) believed it was important that the courses provided a student with an indication of ability to do college work. Additionally, 87 percent of the parents strongly favored Project Advance as an enrichment of high school experience and 70 percent responded "Important" to the statement "Students completing Project Advance courses are more confident about their ability to do well in college." Thus the advantages of Project Advance as perceived by parents appeared to relate to improving the students' probability of success in college rather than economic

advantage.

Parents perceived improving the students' potential for academic success in college to be more important than economic savings.

Compatibility. The second category used to describe perceived characteristics of an innovation provided an examination of several relationships. Compatibility includes comparisons of the innovation with existing social values, organizational structure, and perceived needs.

Since the majority of high school graduates in New York State have enrolled in college, the earning of college credit, per se, was compatible with existing social value. Thus, the newness of Project Advance was in the organization and location rather than eventual outcomes, i.e., college credit. This appeared to be self-evident and bore further examination only insofar as it related to particular schools.

The organizational structure of public schools, as with any bureaucracy, favors self-perpetuation (Pincus, 1974). Since students remained in the system and teachers retained their traditional role, the innovation was compatible with the existing structure. Students enrolling in courses off the high school campus or faculty coming onto the campus compete with existing structure. Over five percent of the high school students in New York graduate at the end of their junior year chronologically. This, in addition to the projected decrease in enrollments, created a climate that was favorable. The public schools perceived a need for innovations that would retain students in the system.

As an innovation, the Project was perceived as contributing to stabilizing and perpetuating the organization, and thus was compatible with organizational needs and values.

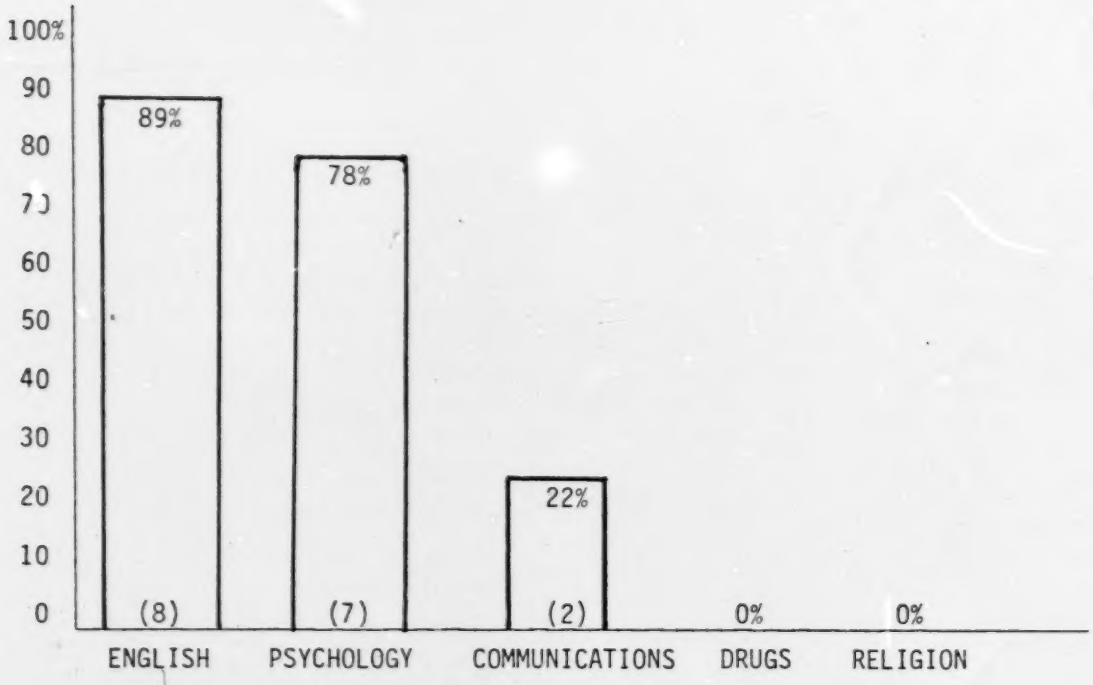
The strong relationship between adoption and compatibility was most clearly supported by the differences in the selection of courses. Five courses were available for the 1973-74 academic year: Religion, Drugs, Communications, Psychology and English.

Though there were at least three schools with teachers qualified to teach the Drugs and Religion courses, no school offered either Drugs or Religion. Of the nine schools, eight offered English, seven Psychology, and two Communications.

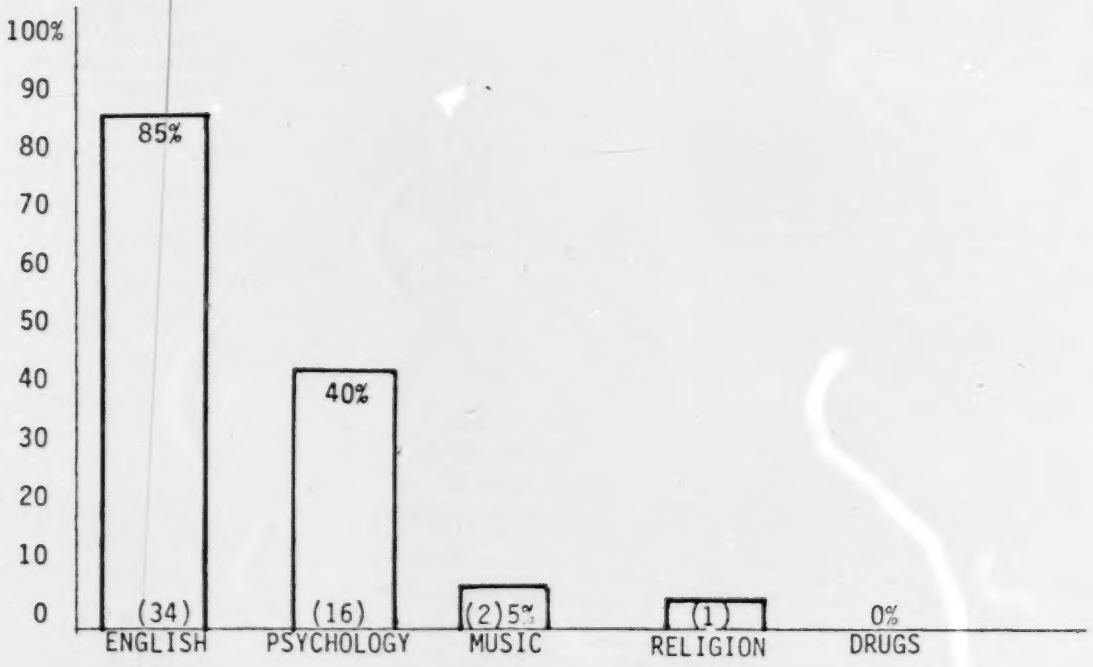
With 40 schools offering courses in academic year 1974-75, the same pattern was evident. Thirty- four offered English, 16 Psychology, 2 Music, and 1 Religion. (Music had been added; Communications dropped.) The predictable difference in compatability between the high school curricula and Religion and Drugs courses

COMPATIBILITY

PERCENT OF SYRACUSE UNIVERSITY PROJECT ADVANCE COURSES
OFFERED IN SCHOOLS (N = 9), ACADEMIC YEAR 1973-74



SYRACUSE UNIVERSITY PROJECT ADVANCE COURSES
OFFERED IN SCHOOLS (N = 40), ACADEMIC YEAR 1974-75



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need not be belabored. The difference between English and Psychology was less predictable.

Psychology courses have an inherent advantage over English courses in student interest. However, the organization and curricular compatability appeared to have been more powerful in determining adoption. Eighty-five percent of the schools offered English in 1974-75 while forty percent offered Psychology.

The congruence of the innovation with existing practice may have increased the likelihood of adoption. Conversely, the less the innovation was perceived as compatible with existing practice, the less likely it was to be adopted.

A separate factor may have influenced this adoption pattern: most colleges have required freshman English while courses such as Psychology have been electives. The students and parents may have perceived higher utility for the English course as opposed to Music or Psychology courses. English was also a requirement in the high school. A more formal study would have been necessary to discriminate among the possible perceptions of English: relative advantage in terms of transferability or compatability with need and existing structure were equally plausible explanations.

Complexity. Perceived complexity of an innovation is negatively related to adoption (Petrini, 1966). Conceptually, the earning of college credit through this and similar programs was not complex. Further, since neither students or teachers were transported, the logistics appeared simple. The arrangements for summer workshops, money collection, and other administrative activities tended to slow adoption. Decision making became complex because of the number of "gatekeepers" (Havelock, 1973) involved. Effort on the part of the Project staff was required to facilitate the decision making.

The adoption of the innovation was a relatively simple process and thus may have increased the potential for adoption.

A separate consideration, the discontinuance of the innovation because of complexity remains to be examined. The source of concern was the within-course complexity. This involved logistical concerns inherent in an individualized program, difficulty of use, such as excessive teacher time for grading by University standards, and other front line problems. This was of interest, since it made a clear discrimination between perceptions of complexity related to adoption and perceived complexity related to continuance. The time span of 18 months was too short to furnish data on discontinuance. No school participating in the first year dropped out nor has any school currently in Project Advance proposed discontinuance.

Trialability. Also described as divisibility, the idea of reducing risk by incremental adoption appeals to reason. No school offered more than three Project Advance courses in 1973-74 or 1974-75. Of the five courses available in the first year, two schools offered only one course, four offered two courses, and three offered three courses. Thus, 66% of the schools offered only one or two courses. The pattern emerged more clearly in the second year. Approximately 67 percent, or 27 of the 40 schools, offered only one course. Eleven schools, or 27 percent, offered two, and two schools, five percent, offered three courses. Thus, 95 percent of the schools offered only one or two courses. Further, the majority of schools in the first year offered only one class of the course(s) actually taught. Two of the larger schools offering only one section clearly had the potential to offer multiple sections of a course. That trialability was a factor was demonstrated by the expansion to four sections in the second year in both schools.

Adopters appeared to prefer to try the innovation on a limited basis before expanding. Further, the innovation possessed the characteristic of divisibility which may have been so perceived by adopters and thus have increased the likelihood of adoption.

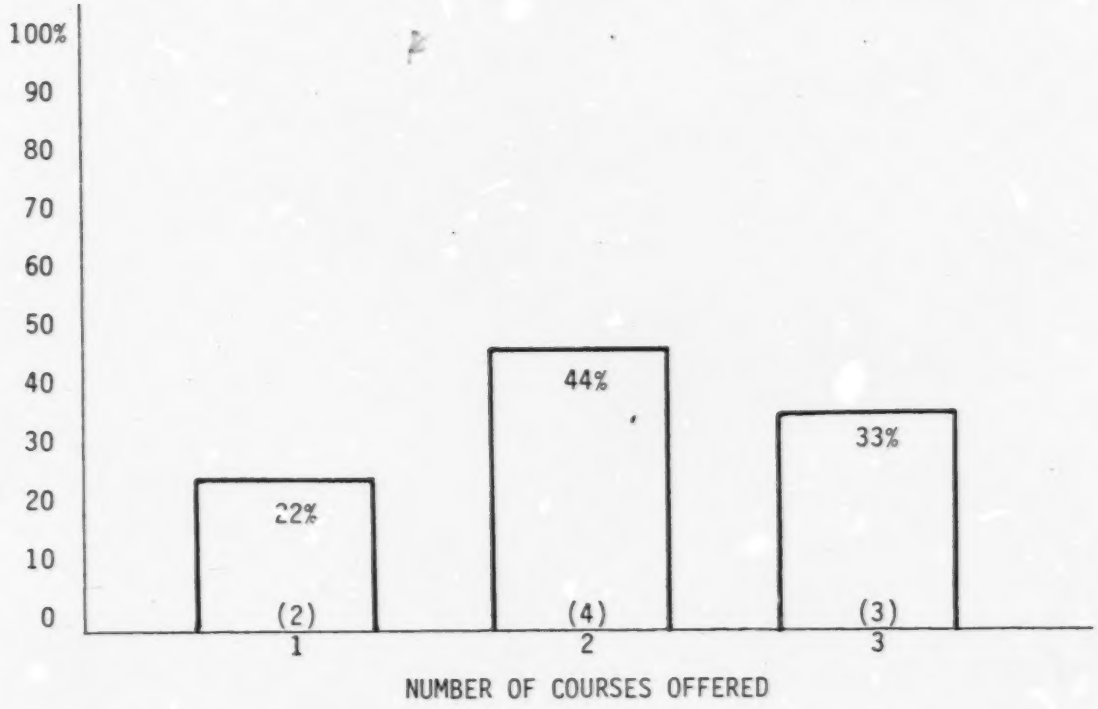
Observability is the visibility or demonstrability of an innovation. The examination of this characteristic has centered on material and technical innovation rather than ideas or process. The literature indicates the observability of the innovation is positively related to its adoption rate (Rogers and Shoemaker, 1971).

The observability of the Project did not appear to be positive. Its redeemable feature was that it was easy to describe in conceptual terms. An earlier term used to describe this characteristic was "communicability" (Rogers, 1962). Given this dimension of this category, the Project may have benefited from the conceptual ease with which it could be described to potential adopters. The most important perceived characteristic may have been the college credit structure.

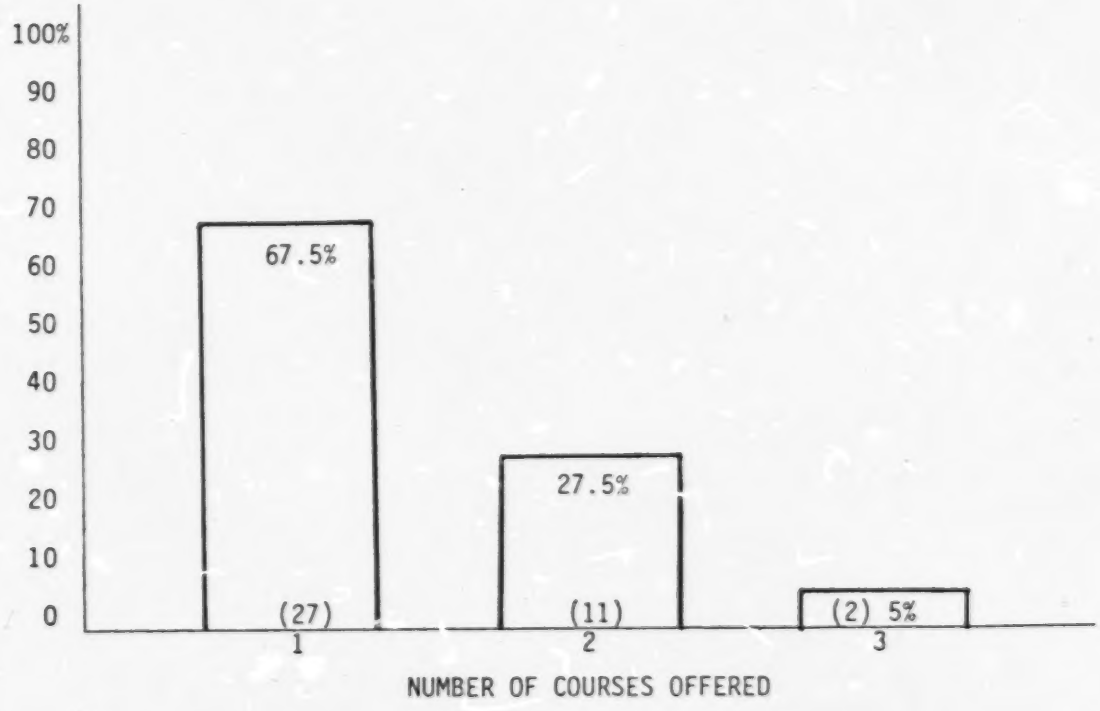
Brief descriptions through the media, mailings, and presentations at regional meetings appeared to relate to adoption. One mailing and one regional meeting on Long Island elicited considerable response with thirteen schools adopting.

The observability of the innovation may better be described as communicability. The compatibility of the concept may affect communicability.

SCHOOLS (N = 9) BY NUMBER OF SYRACUSE UNIVERSITY PROJECT ADVANCE COURSES OFFERED, ACADEMIC YEAR 1973-74



SCHOOLS (N = 40) BY NUMBER OF SYRACUSE UNIVERSITY PROJECT ADVANCE COURSES OFFERED, ACADEMIC YEAR 1974-75



Summary

This innovation (Project Advance) did not appear to possess all characteristics in an equal degree. The low interrelationships among the five attributes (Kivlin, 1960) indicates that uniformity is not necessary to maximize the potential for adoption. The nature of the innovation lent itself to some attributes, such as trialability, but not to others, such as observability.

The purpose of this analysis was to demonstrate the utility of an *a priori* examination of the attributes of an innovation. The formative data available appeared to bear out the utility of the categorization. This type of analysis, rather than a moribund post hoc examination, should increase the probability of success in program design.

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